

30 June 1986

Operations

DEFENSE METEOROLOGICAL SATELLITE PROGRAM (DMSP)
MISSION REQUIREMENTS DOCUMENT

This regulation covers operational requirements and doctrine for DMSP units at Offutt AFB NE; Fairchild AFB WA; and Loring AFB ME. It is used to determine required actions in support of the DMSP mission. In tactical situations, Commander, Air Force Space Command, through the senior officer on duty in the USSPACECOM Space Operations Center or the 2 Space Wing, Deputy Commander for Operations may direct deviations from this regulation. It applies to the 1000 Satellite Operations Group (SOG); Det 1, 1000 SOG; Det 2, 1000 SOG; the 2 Space Wing, and applicable HQ Air Force Space Command directorates. Send recommended changes and proposed supplements of this regulation to HQ AFSPACECOM/DOS for approval. In case of conflict between this regulation and unit, contractor, or other major command publications, this regulation applies.

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Chapter 1

MISSION AND RESPONSIBILITIES

1-1. Mission. The DMSP provides, through all levels of conflict, consistent with the survivability of the supported forces, global visual and infrared cloud data, and other specialized meteorological, oceanographic, and solar geophysical data required to support worldwide Department of Defense (DOD) operations and high priority programs. Timely data are supplied to Air Force Global Weather Central (AFGWC), the Navy Fleet Numerical Oceanography Center (FNOC), and to deployed tactical receiving terminals worldwide. As resource manager and operator of DMSP satellites, the Air Force Space Command performs on-orbit command and control of spacecraft and mission payloads; distributes data to AFGWC, FNOC, and tactical terminals; and maintains satellite health. For glossary of terms, see attachment 1.

1-2. Responsibilities:

a. 1000 SOG:

- (1) Provides continuous 24-hour-a-day command and control of on-orbit spacecraft.
- (2) Generates computer files to support all aspects of the mission.
- (3) Performs satellite health analysis.
- (4) Conducts routine and emergency commanding to maintain and restore spacecraft and sensor functions.
- (5) Conducts routine and emergency commanding to program sensors and retrieve and distribute data to processing agencies.
- (6) Performs operational reporting.
- (7) Performs organizational and intermediate-level maintenance on the command and control system.

b. Det 1, 1000 SOG:

- (1) Provides continuous 24-hour-a-day relay of DMSP commands for transmission to DMSP spacecraft.
- (2) Provides continuous 24-hour-a-day retrieval and distribution of payload data and spacecraft command and control data and telemetry.
- (3) Provides local command and control backup for all scheduled satellite loading runs.

(4) Provides "stand alone" command capability able to perform mission payload programming and spacecraft command and control for at least 24 continuous hours from activation.

(5) Performs organizational and intermediate-level maintenance on the command and control ground system.

(6) In the absence of the 1000 SOG, continues to collect and distribute data, and provides independent reporting of activities.

c. Det 2, 1000 SOG:

- (1) Provides continuous 24-hour-a-day relay of DMSP commands to DMSP spacecraft.
- (2) Provides continuous 24-hour-a-day retrieval and distribution of payload data and spacecraft command and control data and telemetry.
- (3) Performs organizational and intermediate-level maintenance on the command and control ground system.
- (4) In the absence of the 1000 SOG, continues to collect and distribute data.
- (5) In the absence of Det 1 and 1000 SOG, provides independent reporting of activities.

d. The 1000 SOG Units. In support of Commander, Air Force Space Command:

- (1) Maintain maximum mission capabilities as described in paragraph 1-1 and continuously strive to maximize satellite and equipment availability.
- (2) Determine and report site and system status (chapter 5).
- (3) Identify major deficiencies in capability, needed improvements to critical operational procedures, and new mission requirements to 2 Space Wing Deputy Commander for Operations for staffing by HQ AFSPACECOM Directorate of Space Systems. Technical interchange between 1000 SOG and the DMSP System Program Office is encouraged. Requirements advocacy is performed by HQ Air Force Space Command Directorate of Space Systems.

1-3. Equipment Location and Description. Equipment is located at:

a. Satellite Operations Center (SOC), 1000 SOG, Offutt AFB NE; consists of computers, communications equipment, peripheral equipment, terminals, and consoles. The SOC is the operational command and control center for all on-orbit DMSP satellites. At a minimum, the SOC must be capable of commanding the required on-orbit DMSP satellite force structure through Det 1 and Det 2 simultaneously.

b. Command Readout Station (CRS), Det 1, 1000 SOG, Fairchild AFB WA; consists of operations and support buildings which house the computers; communications transmitters and receivers, recording equipment, command and control subsystems, and a 40-foot diameter parabolic antenna contained in a rigid radome. Det 1 is able to perform local command and control of DMSP satellites which enter into its field of view, and relay command and telemetry data between those satellites and the SOC. Det 1 must be capable of commanding one DMSP satellite at a time.

c. Command Readout Station (CRS), Det 2, 1000 SOG, Loring AFB ME; consists of operations and support buildings which house communications transmitters and receivers, recording equipment, and command and control relay subsystems, and a 40-foot diameter parabolic antenna contained in a rigid radome. Det 2 can only relay command and telemetry data between the SOC and satellites which enter into its field of view.

1-4. Command, Control, and Management. The Commander, Air Force Space Command, exercises resource and technical management of the 1000 SOG units through the HQ AFSPACECOM Directorate of Space Systems (DOS). Administrative control of the 1000 SOG, and training, standardization, and evaluation of the crew personnel is managed by Air Force Space Command through the Commander, 2 Space Wing. Commander, Air Weather Service (AWS), determines on-orbit sensing capability needed to satisfy operational needs and specifies daily data collection needs through the AFGWC. AFGWC specifies daily operational data collection needs through payload activation messages (PAM) submitted by 1000 SOG to the Satellite Mission Planning Branch, Operations Division.

Chapter 2

INTERFACE

2-1. Space Operations Center. Since Air Force Space Command is a component of and collocated with USSPACECOM, the USSPACECOM Space Operations Center (SPOC) provides up- and down-channel notification for Air Force Space Command and its subordinate units. The USSPACECOM SPOC provides interface with higher and lateral headquarters for all organizations operationally responsible to Air Force Space Command, and is the intermediate in the reporting chain for reports required by JCS Publication 6. Because the USSPACECOM SPOC is operational 24 hours a day, it is the 2 Space Wing's immediate operational representative until initial operational capability (IOC) of a 2 Space Wing Command Post. The USSPACECOM SPOC operates under rules and procedures established by the JCS Emergency Actions Procedures (EAP), volume 1, and USSPACECOM regulations. All reporting to the National Military Command Center (NMCC) is through the USSPACECOM SPOC; if reporting goes to agencies outside the military chain of command, special procedures apply. In the case of DMSP, the SPOC also receives, monitors, and provides communications support for reports to the Air Force Operations Center and Space Division/YD.

2-2. Space Defense Operations Center (SPADOC). The SPADOC is located within the Cheyenne Mountain Complex (CMC) and performs USSPACECOM space defense missions.

a. The SPADOC, a command and control facility under the direct operational control of USCINCSpace, acts as the focal point for space defense operations to ensure effective management of all space defense resources. SPADOC is the central point within USSPACECOM for operations and actions required to:

- (1) Monitor space activity.
- (2) Inform others on the space situation.
- (3) Protect designated space assets.

b. The SPADOC operates under the rules and procedures established by ADCOM Regulation 55-58(S); JCS EAP, volume VI; and other applicable USSPACECOM regulations. All reporting to the NMCC is through the USSPACECOM SPOC. Special pro-

cedures may apply if reporting must go to agencies outside the military chain of command.

c. The SPADOC also acts as the focal point for the United States active satellite list (ASL) as reported by the owner or operator. Collecting and correlating the status information on designated United States and allied satellites and associated communications and ground stations permit these services to be accomplished:

- (1) Brief the USCINCSpace on the ASL for the purpose of space defense related activities.
- (2) Forward daily messages to NMCC and other operations centers.

2-3. Space Operations Center Reporting. See chapters 6, 7, and 8 for space operations center reporting procedures.

2-4. SPADOC Reporting. The 1000 SOG provides operational and service messages as defined by SPADOC, to support the status monitoring, attack warning, protection, and negation missions. SPADOC notifies the 1000 SOG of its specific data requirements, to include, but not limited to, those accomplished under the provisions of Interface Control Document (ICD) number 301401, section 9, and appendix A. SPADOC also provides the 1000 SOG message support specified in that ICD.

2-5. Space Surveillance Center (SSC):

a. The 1000 SOG publishes an Orbital Support Requirement Document (OSRD) which identifies required SSC data support. The OSRD is reviewed and updated annually.

b. Provides the 1000 SOG orbital data on specified satellites as identified in the DMSP OSRD. These data include:

- (1) Current elements (general, specific, or special perturbation).

- (2) Future epoch elements.
- (3) Highly accurate state vectors.
- (4) Any other positional data or state of health support within SSC capabilities.

2-6. Alternate Space Surveillance Center (ASSC).
The ASSC provides the data identified in paragraph 2-5b during level 3 and 4 operations defined in N/A/SR 55-49(S).

Chapter 3

AIR WEATHER SERVICE (AWS) INTERFACE

3-1. General. To effectively accomplish the mission stated in paragraph 1-1, the 1000 SOG works closely with AFGWC to maximize the meteorological data collected by the DMSP system. Interface with AFGWC normally takes place through the Satellite Mission Planning Branch of the Operations Division, the Space Systems Branch of the Systems Engineering and Analysis Division, and the Ground System Maintenance Branch of the Logistics Division.

3-2. Mission Planning. The 1000 SOG establishes procedures to:

a. Inform AFGWC on spacecraft and master scheduling system capabilities so that data collection requests are made within total system constraints. The unit helps AFGWC work within system constraints to maximize data collection.

b. Coordinate with AFGWC to make certain all data collection requirements are received in time to support scheduled runs of the master scheduling system.

c. Notify AFGWC as soon as possible of changes in spacecraft capabilities impacting current and future data collection requests. These include:

- (1) Total spacecraft failure.
- (2) Loss of data recording capability.
- (3) Significant changes in the satellite power subsystem.
- (4) On-board spacecraft computer failure.
- (5) Change to mode of attitude control.

d. Respond to emergency AFGWC mission data requests within 48 hours. Responsive actions should be taken as soon as possible without jeopardizing quality control processes.

Note: The 1000 SOG responds to sudden spacecraft degradations with the goal that spacecraft health is

paramount, then recovery of meteorological data should be maximized.

3-3. Stored Data Retrieval. CRSs receive primary and mission sensor data. This data is transmitted to AFGWC and FNOC through a satellite communications link. In support of this requirement, the 1000 SOG and its detachments make sure:

a. The primary data type specified by AFGWC is provided real-time to its data reconstruction station (DRS) as it is received from the satellite. Sprint data is received at the DRS within 10 minutes of satellite fade.

b. Remaining data recoveries are provided in a timely manner after the real-time relay.

c. Reshipments of stored data readouts are provided as soon as possible after reship notification.

d. The AFGWC DRS is notified when spacecraft providing readout is not operating in primary attitude determination system (PRADS) mode of attitude control. Attitude error data is provided to the DRS as necessary to adjust data processing parameters.

e. Systems Engineering and Analysis Division personnel work with AFGWC to analyze and correct problems in DMSP data quality.

3-4. Tactical Terminal Support:

a. The 1000 SOG provides on a regularly scheduled basis control data products necessary for reception and reduction of data from the satellites to all global and tactical sites. The 1000 SOG develops and maintains procedures to ascertain from AFGWC specific needs for each site. These procedures provide quarterly revalidation to make sure of timely data support.

b. 1000 SOG production and distribution of on-orbit control data products for non-DMSP satellites may be required to support user mission requirements. HQ Air Force Space Command Director of Space Systems is the approval authority for all requests.

Chapter 4

OPERATIONS

4-1. General. An operational requirement is an established need, assigned task, or designated objective. A procedure is a series of steps, methods, or a particular way of accomplishing a task or objective that supports an operational requirement. Operational requirements which need response from DMSP units generally fall into two categories:

a. Those related to mission data collection are:

- (1) Mission statement.
- (2) Mission priorities.
- (3) Employment of equipment.
- (4) Satellite programming.
- (5) Spacecraft health and status monitoring.
- (6) Data retrieval and transmission.

b. Those related to determining and reporting operational status are:

- (1) Criteria and formats for submitting reports.
- (2) Terms, definitions, and criteria for system status reporting.
- (3) Meaconing, intrusion, jamming, and interference (MIJI).
- (4) Operational capability (OPSCAP).
- (5) Computer and communications status.

c. 2 Space Wing Deputy Commander for Operations coordinates on DMSP unit operational procedures prior to publication. On approval, provides information copies to HQ AFSPACECOM Chief of the Satellite Operations Division.

4-2. Command and Control:

a. The satellite systems director (SSD) at the SOC directs operations to fulfill command and control and mission data collection requirements. The SSD is responsible to the Commander, Air Force Space Command, for operation of DMSP resources located at the 1000 SOG, Det 1 and Det 2. Prior to initial operational capability (IOC) of a 2 Space Wing Command Post, the USSPACECOM Space Operations Center is the facility through which any up-channel operational

reporting is accomplished. The senior director (SD), within the SPOC, is responsible for relaying down-channel operational direction from the Commander, Air Force Space Command and 2 Space Wing to the 1000 SOG. The 1000 SOG notifies the 2 Space Wing Deputy Commander for Operations as soon as possible following the transmission or receipt of any time critical up- or down-channel report. The SD also notifies specific agencies who have requested to be notified of significant DMSP events. Finally, the SD has authority to direct DMSP activities relating to defensive countermeasures for spacecraft survivability.

b. The satellite systems operations director (SSOD) at Dets 1 and 2 is responsible to the SSD for operation of DMSP resources at each detachment. The SSOD acts without the specific approval of the SSD or designated representative; for example, satellite system controller during satellite commanding, only when communications are lost. When communications are restored, all actions taken are reported to the SSD. During normal operations, all reporting to the USSPACECOM SPOC is done by the SSD. Consolidated inputs from the detachments and the SOC are developed before notifying the SPOC.

c. Authority to command operational DMSP satellites resides in the 1000 SOG Commander and is delegated to the SSD, unless otherwise specified. Routine satellite commanding is the responsibility of the satellite system controller in accordance with current approved command plans and with approval of the SSD.

4-3. Normal Operations:

a. The 1000 SOG develops procedures for normal operation of DMSP spacecraft that are consistent with technical guidance from HQ Air Force Space Command Directorate of Space Systems, 2 Space Wing, the DMSP System Program Office (SPO), and spacecraft and ground system contractors. Normal operations, to include data collection, constitute those activities routinely performed during a contact with a satellite through one of two Command Readout Stations (CRS) or the AF Satellite Control Facility (AFSCF) Remote Tracking Station (RTS) at Kaena Point, Hawaii (HULA). 1000 SOG activities include:

- (1) Commanding the satellite in real-time.

(2) Generating spacecraft memory command and control data for subsequent loading into the satellite computers. These loads provide stored command inputs for satellite control when it is outside station coverage.

(3) Monitoring satellite state of health (SOH). At each satellite contact, health and status are checked through real-time telemetry displays. Perform post pass SOH analysis from the complete telemetry data base.

(4) Retrieving meteorological data for AFGWC and FNOC and orbital telemetry data for engineering off-line trend analysis.

(5) Routing DMSP data to AFGWC and FNOC by way of commercial communications links.

(6) Developing procedures to use other AFSCF RTSs for routine state of health checks of DMSP satellites.

b. HQ 1000 SOG Director of Operations establishes procedures for crew activities to include keeping of a log by the SSD, command center communications checks, and crew changeover briefings.

c. HQ 1000 SOG Director of Operations develops loss of communications procedures to make sure the detachments continue to acquire and provide data to users while attempting to regain contact with the SOC.

4-4. Special Operations:

a. **Spacecraft Malfunction.** The 1000 SOG develops procedures for operating malfunctioning DMSP spacecraft that are consistent with technical guidance provided by HQ Air Force Space Command Directorate of Space Systems, the DMSP SPO, and satellite and ground system contractors. These procedures address anticipated and historical spacecraft failures. The procedures also include actions aimed at maximizing on-orbit spacecraft capabilities while minimizing risk to satellite health.

b. **Tactical Operations.** The 1000 SOG develops procedures to use the spacecraft memories to maximize delivery of real-time data to tactical units in the event of hostilities which interrupt routine capability to program mission data collection. These procedures are used in the event of degradation or incapacitation of commanding capabilities.

c. **CAP Employment.** The command access period (CAP) is employed on all DMSP spacecraft not equipped with command encryption and authentication.

d. **Threat and Intrusion Detection.** The 1000 SOG develops procedures for routine analysis of satellite telemetry to detect and report satellite intrusion and

or interference in a timely manner. SPADOC reporting is accomplished as identified in chapters 2 and 6.

e. **Operations Review Board.** The 1000 SOG Director of Operations convenes a board to determine cause of all data losses which may be related to personnel error. Sends reports to HQ AFSPACECOM/ DOSC and 2 Space Wing/DO.

4-5. **Local Commanding.** The 1000 SOG develops procedures for the employment of the local commanding capability at Detachment 1. These procedures specify use of local commanding capabilities for scheduled loading runs and for emergency backup support. These procedures include conditions under which the SSOD assumes control from the SSD and directs spacecraft commanding from Detachment 1. Local commanding is exercised a minimum of one R+O load run and one ephemeris load run per day. Emergency backup is required when there are indications of a severe malfunction of the HQ 1000 SOG ground system or when deemed necessary by the SSD.

4-6. **Launch Activities.** The 1000 SOG provides assistance to the DMSP SPO for launch operations to include compatibility tests and rehearsals. The unit also provides, within capability, necessary facilities, personnel, and products and co-chairs and conducts meetings of the Orbital Operations Working Group.

4-7. **Early Orbit.** The 1000 SOG helps the SPO conduct early orbit testing of all new DMSP satellites to include evaluations of all subsystems.

4-8. **Configuration Management.** The 1000 SOG performs configuration management for DMSP software, firmware, and hardware in accordance with the DMSP Configuration Management Plan and 1000 SOGR 800-1. The Commander, 1000 SOG or the designated representative maintains membership on the DMSP Configuration Control Board in accordance with Systems Concepts and Procedures (SCAP), volume I. HQ Air Force Space Command is a member of the C³ Interface Working Group and provides recommendations for approval or disapproval of proposed changes.

4-9. **Engineering Support.** The 1000 SOG, throughout the useful life of each DMSP spacecraft, monitors the status of each subsystem, and maintains and analyzes available spacecraft and sensor telemetry. These records are analyzed to detect degradations or anomalies. Tests and procedures or permanent changes are proposed and developed to minimize the effects of anomalies. The 1000 SOG provides engineering support to the unit maintenance organizations. Engineering support to unit maintenance organizations at the depot level is provided by the DMSP SPO.

Chapter 5

DMSP SYSTEM OPERATIONAL CAPABILITY (OPSCAP)

5-1. General. DMSP system operational capability (OPSCAP) is an assessment of the capability of DMSP satellites and the ground control systems to perform the meteorological data collection mission for all cloud imagery data from the operational linescan system (OLS). System OPSCAP is expressed by color codes as defined:

- a. GREEN — little or no loss of mission data capability.
- b. YELLOW — significant loss of mission data capability.
- c. RED — severely degraded mission data capability.

5-2. OPSCAP Determination. DMSP system OPSCAP is determined by combining constellation status and ground network system status, using table 5-1, DMSP System OPSCAP. Constellation status begins with a determination of individual satellite status. This is accomplished by:

a. Satellite and Constellation Status Determination:

(1) Individual satellite status must be determined first. Individual satellite status is based on the capability of that satellite to accomplish OLS mission tasking over a 24-hour period. OLS mission tasking is divided into two areas: tactical support and strategic support. The combination of tactical and strategic capabilities determines the individual satellite status.

(a) Strategic and tactical capability (C) is determined by the amount of data actually provided by the satellite (amount of satellite data delivered (Sd)) versus the amount of user data requested by AFGWC (Ut). Satellite capability is computed separately for tactical and strategic support using the formula: $C = 100 \times Sd/Ut$. Tactical or strategic status criteria follows:

- 1. GREEN: 92 — 100 percent.
- 2. YELLOW: 75 — 91 percent.
- 3. RED: Less than 75 percent.

(b) Once the tactical and strategic color status is made, the individual satellite status can be determined from table 5-2, Satellite and Constellation Status.

(2) Satellite constellation status is based on the capability of the full constellation to accomplish total OLS mission tasking over a 24-hour period. This is determined by combining the tactical and strategic support for the constellation. For constellation capability (C), compute total Sd and Ut separately for tactical and strategic support and apply the formula.

(3) The individual satellite status and the constellation status is adjusted based on the average minutes of data provided for the month previous to the degradation in the event a satellite is functionally not able to provide full capability. This average provides a fixed baseline to be used for status determination until the satellite is once again fully capable, or is deactivated.

(4) Air Force Global Weather Central (AFGWC) declares data unusable if the data does not meet their time and data requirements. When AFGWC declares delivered data unusable, the data amount is charged against Sd when calculating strategic capability (C).

b. Ground Network Status Determination. Ground network status represents the capability of the ground command and control elements to schedule, program, retrieve, and distribute OLS mission data.

(1) It is determined by the capability of each of the following:

- (a) Satellite operations center.
- (b) LIZA command readout station.
- (c) FAIR command readout station bent pipe.
- (d) FAIR command readout station local commanding.

(2) Command and control status for the SOC and each CRS is determined from the equipment systems available at that element (see table 5-3, Command and Control Status). Overall ground network status is determined from the capability of the ground network elements to provide requested imagery from the OLS (see table 5-4, Overall Ground Network Status).

5-3. Data Loss:

- a. Human error resulting in the noncollection of requested data is charged against the ground network status and in turn is reflected in the system OPSCAP.

This is reported against the system because of the loss of requested data.

b. Plans errors which cause data loss are charged against ground network status until corrective action is complete.

c. In the event that the data is lost due to human error after the data is collected, or a plans error causes

a data loss which is discovered after the termination of the collection pass, and no additional loss is incurred, no change in OPSCAP is reported. However, all data loss is reported appropriately (see paragraph 6-1b).

d. All data losses which may be related to personnel error are reviewed by the Operations Review Board (see paragraph 4-4e) to determine cause and resolution.

TABLE 5-1

DMSP SYSTEM OPSCAP

If	then OPSCAP is
Satellite and constellation status is GREEN <u>and</u> ground network is GREEN	GREEN
Satellite and constellation status is GREEN <u>and</u> ground network status is YELLOW	YELLOW
Satellite and constellation status is YELLOW <u>and</u> ground network status is GREEN or YELLOW	
Satellite and constellation status is GREEN, YELLOW, or RED <u>and</u> ground network status is RED	RED
Satellite and constellation status is RED <u>and</u> ground network status is GREEN, YELLOW, or RED	

TABLE 5-2

SATELLITE AND CONSTELLATION STATUS

TACTICAL SUPPORT	STRATEGIC SUPPORT	SATELLITE/ CONSTELLATION STATUS
G	G	G
G	Y	Y
G	R	Y
Y	G	Y
Y	Y	Y
Y	R	R
R	G	Y
R	Y	R
R	R	R

TABLE 5-3

COMMAND AND CONTROL STATUS

R U L E	For the	if	then the OPSCAP is		
			GREEN	YELLOW	RED
1	Satellite Operations Center (SOC)	two or more commanding and telemetry systems are operational (see note 1) one complete commanding and telemetry system is operational no complete commanding and telemetry system is operational	X	 X	 X
2	LIZA and FAIR "Bent Pipe"	transmit and receive systems are operational transmit system failed OR receive system failed to the extent that real-time state of health and primary data cannot be retrieved simultaneously (see note 2) archive (recording) or receive system failed (see note 3) OR receive an uplink relay and archive system failed to the extent that primary data is lost (see note 3)	X	 X X	 X X
3	FAIR "local commanding"	system is capable of commanding and real-time telemetry available for command verification system can perform only commanding (telemetry not available for Command verification) system is not capable of commanding	X	 X	 X

Notes:

1. A single commanding machine, plus associated peripherals (AMP, RT DECOM, ST DECOM) is all that is operational. The use of a second machine to fulfill the mission does not meet the criteria.
2. A single receiver operational would cause this condition. On a time-shared basis, all frequencies can be received, but real-time telemetry would be sacrificed to retrieve mission data.
3. No receivers operational, no tape recorders operational, or no way to transmit data to HQ AFGWC. Lost data is RED. Late data is GREEN, except SPRINT data, which is considered lost.

TABLE 5-4

OVERALL GROUND NETWORK STATUS

If	then the overall status is
Satellite Operations Center (SOC) is <u>GREEN</u> <u>and</u> FAIR "local commanding" is GREEN, YELLOW, or RED <u>and</u> (see note) FAIR "Bent Pipe" is GREEN <u>and</u> LIZA is GREEN	GREEN
SOC is RED <u>and</u> all other sites are GREEN with a local commanding capability <u>or</u> SOC is GREEN <u>and</u> one or both "Bent Pipe" sites are YELLOW <u>or</u> One "Bent Pipe" is RED <u>or</u> SOC is YELLOW <u>and</u> both "Bent Pipe" sites are GREEN <u>or</u> SOC is YELLOW <u>and</u> one or both "Bent Pipe" sites are YELLOW	YELLOW
SOC is RED <u>and</u> one or both "Bent Pipe" sites are YELLOW <u>or</u> SOC is YELLOW <u>and</u> one "Bent Pipe" site is RED <u>or</u> Both "Bent Pipe" sites are RED <u>or</u> SOC is RED <u>and</u> FAIR "local commanding" is RED	RED

Note: The loss of real-time "local commanding" capability, by itself, can not cause a RED condition. It serves a purely "backup" functional capability, consequently, its availability or nonavailability will have no effect on mission accomplishment (assuming all other systems are GREEN).

Chapter 6

REPORTS

6-1. Daily Operations Report (DOR) (RCS: AFSPACECOM-DOS(D)8301). This is a daily summary of system operational capability (OPSCAP) and performance submitted by the 1000 SOG. The DOR covers events from 0700Z to 0700Z during Standard Time. During Daylight Savings Time the DOR covers events from 0600Z to 0600Z. Transmit within 2 hours of closeout time by priority precedence to: HQAFSPACECOM PETERSON AFB CO//DOSC (ACTION)//DOW/LKR/LKWS/LKMW (INFO)//; HQ USSPACECOM CMC CO//SPADOC/SDD (ACTION)//; 2SPACEWG FALCON AFS CO//DO1W (ACTION)//; HQ USSPACECOM PETERSON AFB CO//J30 (INFO)//; HQ MAC SCOTT AFB IL//XPPT (INFO)//; SD LOS ANGELES AFS CA//YDS/YDG/DOC (INFO)//; AWS SCOTT AFB IL//SYP/DOJ/DOOE (INFO)//; HQ AFSCF SUN- NYVALE AFS CA//VOF/VOO (INFO)//. Emergency status and precedence category assigned to this report is C-2; classification is according to DMSP Security Classification Guide; unclassified reports are "For Official Use Only." The DOR contains as a minimum:

a. A chronological listing of OPSCAP changes including start time, stop time, duration, cause, and recovery action.

b. A data loss summary consisting of the total time lost, type of data loss, start times, stop times, and causes of each loss (with corresponding percentage for the daily reporting period).

c. A chronological listing of degradations to the command and control system including start time, stop time, duration, cause, and recovery action.

d. Remarks to include:

(1) Data losses and command and control degradations.

(2) Changes to collateral mission sensor status since last report.

(3) Corrections or additions to previous DORs.

(4) Items related to operations and mission.

6-2. SPADOC Reports. The 1000 SOG submits hard copy reports to SPADOC in accordance with ICD number 301401, section 9.

6-3. Voice Reporting:

a. The 1000 SOG reports to SPADOC and 2 Space Wing Deputy Commander for Operations changes in OPSCAP status as they occur. The SDD in SPADOC reports any OPSCAP changes identified by the 1000 SOG to the USSPACECOM SPOC. This notification is made as soon as possible following OPSCAP change determination. Estimated time of return to operation (ETRO), if classified, is reported by way of:

(1) AUTODIN.

(2) KL-42.

(3) Dedicated SPADOC terminal by the 1000 SOG to the SPADOC.

b. The SSD in the SOC reports attainment of emergency action message requirements, as applicable, to the message originator in accordance with N/SM 55-19, volume III(S).

c. Security incidents; for example, HELPING HAND or COVERED WAGON reports, are reported to the host base security police. They in turn follow procedures in AFR 207-1 for up-channel reporting. Any incident which impacts operations is reported to SPADOC and 2 Space Wing Deputy Commander for Operations.

6-4. JCS Reports. The 1000 SOG submits the following reports required by JCS Publication 6, volumes II and V:

a. **OPREP-3 BEELINE and PINNACLE.** See SR 55-2.

b. **SITREPs 1 and 2.** See SR 55-2.

c. **SPIREP and CIRVIS.** See SR 55-2.

d. **PERSREP.** See SR 55-2.

e. **JADREP.** See SR 55-2.

6-5. Air Force Reports. The 1000 SOG submits reports required by Air Force directives. In addition, submit special MIJI reports in accordance with AFR 55-3 and AFR 55-3/N/A/S Sup 1. The 1000 SOG includes SPADOC and 2 Space Wing Deputy Commander for Operations as information addressees on all MIJI reports.

6-6. Defense Meteorological Satellite Systems (DMSS) Reports. The 1000 SOG submits the following reports required by the Deputy for DMSS in accordance with DMSP System Concepts and Procedures, volume I:

a. **System Operations and Analysis Report (SOAR).** This is a comprehensive biweekly report. It contains subsystem status tasking and operational difficulties. The report contains data on active satellite operational status, along with a description and analysis of anomalies associated with those satellites. Send report to HQ AFSPACECOM/DOSC, 2 Space Wing/DO1W, Space Division/YD, spacecraft and sensor contractors, Detachment 1 at Fairchild AFB WA, Detachment 2 at Loring AFB ME, AFGWC at Offutt AFB NE, and appropriate users.

b. **Vehicle Anomaly Report (VAR).** The VAR is used to document and request Radio Corporation of America (RCA), Westinghouse Electric Corporation (WEC), or Aerospace Corporation assistance in resolving a spacecraft anomaly beyond the scope of Air Force engineers. The initial report is telefaxed and updated as required. The report is sent as soon as the VAR is opened. The report is submitted to HQ AFSPACECOM/DOSC, 2 Space Wing/DO1W, Space Division/YD, AFGWC/DO, RCA, and Westinghouse.

c. **Ground System Anomaly Report (GAR).** The GAR is used to document and request an investigation of an operational discrepancy in the operational DMSP

ground system. The initial report is made by way of telefax. Report is sent to HQ AFSPACECOM/DOSC, 2 Space Wing/DO1W, and Space Division/YD.

d. **Engineering Analysis Report (EAR).** This is a final report generated to close out a VAR or GAR. It is used to report the results of independent studies and analysis along with any conclusions or recommendations. The report is sent to HQ AFSPACECOM/DOSC, 2 Space Wing/DO1W, Space Division/YD and appropriate contractors.

6-7. Battle Staff Support Center (BSSC) Reporting:

a. The 1000 SOG and its detachments accomplish BSSC reporting as required in N/AM 55-19, volume VI.

b. The 1000 SOG addresses appropriate reports to the BSSC at DEFCON 4 in accordance with SR 55-2 or as directed by the BSSC.

6-8. System OPSCAP Reporting. OPSCAP reporting is accomplished in three steps:

a. System OPSCAP is determined from table 5-1.

b. Satellite and constellation status is determined from table 5-2.

c. Ground system status is determined from tables 5-3 and 5-4.

Chapter 7

EMERGENCY ACTIONS MESSAGE PROCESSING

7-1. General. Emergency actions message (EAM) processing procedures and associated requirements to be used by the 1000 SOG, Det 1, and Det 2 are in N/SM 55-19, volume III(S). The HQ 1000 SOG relays appropriate EAMs to the detachments.

7-2. Attainment Reporting. The attainment of conditions specified in appropriate EAMs is voice reported to the message originator by the SOC for the detachments and itself (see paragraph 6-3b). The message originator, in turn, develops procedures to report 1000 SOG attainments to the USSPACECOM SPOC. The attainment of conditions specified in appropriate EAMs is also reported to SPADOC for the

detachments and the 1000 SOG, using the SPADOC interface. In the event the SOC cannot be contacted, Det 1 reports attainments for both detachments. Det 2 reports for itself if neither the SOC nor Det 1 can be contacted.

7-3. EAM Checklist Development. The 2 Space Wing develops EAM checklists, as appropriate, and provides them to the 1000 SOG.

7-4. Procedures. The HQ 1000 SOG develops procedures which permit Dets 1 and 2 to accomplish independent reporting in the event all communications with the SOC are lost.

Chapter 3

OPERATIONAL REPORTING (OPREP)

8-1. General. The OPREP system provides all levels of command with essential information concerning the planning, initiating, terminating, and results of military operations. The system provides for the reporting of any event or incident which may attract national-level interest, whether or not it is related to possible military involvement. The OPREPs considered in this chapter are event and incident reports (OPREP-3) as governed by JCS Publication 6, volumes II and V, and SR 55-2. The categories of OPREP-3 event or incident reports and their associated flagwords to be used by the 1000 SOG are:

a. **OPREP-3 PINNACLE.** The flagword PINNACLE (used here and in subsequent subparagraphs) denotes that an incident report is sent directly from the originator to the NMCC using the USSPACECOM SPOC. The purpose of the basic OPREP-3 PINNACLE is to immediately notify the NMCC of any event or incident where national-level interest is indicated. National-level interest is presumed when it is conceivable that the highest levels of government desire timely knowledge. For example, an OPREP-3 PINNACLE is submitted if a majority of crew members become severely ill from a suspected biological or chemical attack on the site water supply.

b. **OPREP-3 BEELINE.** This is used to report events or incidents of interest to the Chief of Staff Air Force (CSAF) which do not meet criteria for a PINNACLE. The following are typical events which require the submission of an OPREP-3 BEELINE:

- (1) Failure of a satellite to achieve nominal orbit.
- (2) Failure of a satellite subsystem which significantly degrades the ability of the spacecraft to meet the primary mission.
- (3) Failure of a component of the ground systems for an extended period which precludes delivery of primary sensor data to AFGWC and or FNOC.
- (4) Loss of ability to communicate with the satellite.

c. **OPREP-3 HOMELINE.** This is to notify the USSPACECOM SPOC of any event or incident where higher headquarters-level interest is indicated, but does not meet the criteria for submission of a PINNACLE or BEELINE. For example; an OPREP-3 HOMELINE

is submitted for an accident resulting in the death or injury to any person assigned to 1000 SOG as a result of conducting daily operations.

Note: OPREP-3 HOMELINE reports are normally sent only to USSPACECOM SPOC. However, at the discretion of the USSPACECOM SPOC, the HOMELINE information reported may be considered reportable in the BEELINE or PINNACLE categories and so reported.

8-2. Responsibilities:

a. The 1000 SOG is responsible for submitting operational reports for DMSP as identified in this regulation and in accordance with JCS Publication 6, volumes II and V, and SR 55-2.

b. The 1000 SOG maintains OPREP-3 report numbering logs for the Satellite Operations Center and each detachment as identified in SR 55-2.

c. The USSPACECOM SPOC is responsible for monitoring reports submitted by 1000 SOG agencies to make sure of proper addressing and routing of the reports.

d. The 2 Space Wing is responsible for advising the appropriate staff element of information received that has not been reported, to determine reportability of the information.

8-3. Procedures for Submitting Reports:

a. **Who Submits the Reports.** The lowest level of command having knowledge of the event or incident submits identified reports. For the 1000 SOG, this is normally the SOC. Dets 1 and 2 submit the reports through the SOC. However, in the event the SOC has lost communications, Det 1 does the reporting for both the SOC and Det 2. Loss of communications with both the SOC and Det 1 require Det 2 to accomplish reporting for itself. Reports are submitted as soon as the event or incident occurs.

b. Reports Submitted:

(1) **Voice Reports.** Submit PINNACLE and BEELINE reports immediately. Submit HOMELINE reports as soon as possible, not to exceed 15 minutes.

(2) Teletype Reports. Submit a teletype report as record follow-up to each voice report. Submit the initial report within 1 hour of the start of the event or incident. If the reporting unit expects to exceed this 1-hour time limit, the unit indicates this in the initial voice report.

(3) Updates. Submit voice update reports as soon as possible when new data pertinent to the event or incident becomes available. Consolidate data and submit a teletype report as soon as possible for each voice update report.

(4) Final Report. Submit upon termination of the event or incident.

c. Submitting Voice Reports. Submit the:

(1) PINNACLE to the NMCC and Space Division Command Post through the USSPACECOM SPOC.

(2) BEELINE to the Chief of Staff Air Force (CSAF) and Space Division Space Operations Center through the USSPACECOM SPOC.

(3) HOMELINE to the USSPACECOM SPOC.

d. Submitting Teletype Reports. See agencies identified in SR 55-2. See figure 8-1 for additional PINNACLE/BEELINE information addressees. A sample teletype report format for PINNACLE/BEELINE reports is in figure 8-2.

e. How to Submit Voice Reports. Submit all voice reports to appropriate higher headquarters through the USSPACECOM SPOC by using GP AUTOVON 692-5572. Notify the command and control technician (CCT), "This is (duty title) at (unit) with an OPREP-3 (type) report. Connect me with the NMCC emergency actions officer (PINNACLE), the USAF Operations Center (BEELINE), and the USSPACECOM senior director (HOMELINE) with a FLASH precedence; and Space Division Command Post (PINNACLE or BEELINE) at Los Angeles CA."

HQ USSPACECOM PETERSON AFB CO//J3O//
HQ USAF WASHINGTON DC//RDSL/XOSO/XOOF//
HQ AFSC ANDREWS AFB MD//SDS/DOC//
HQ MAC SCOTT AFB IL//XPP//
CNO WASHINGTON DC//OP 943/OP 952//
SD LOS ANGELES AFB CA//YD/YDS/DOC//
AFSCF SUNNYVALE AFS CA//VOF/DOV/VOO/WE//
HQ AWS SCOTT AFB IL//CC/SY/DO//
AFGWC OFFUTT AFB NE//CC/DO//
HQ AFCC SCOTT AFB IL//LGMB//
2SPACEWG FALCON AFS CO//DO/DO1//
DET 1 1000 SOG FAIRCHILD AFB WA//CC//
DET 2 1000 SOG LORING AFB ME//CC//

Figure 8-1. PINNACLE/BEELINE Information Addressees.

TO: (See SR 55-2)

INFO: (See figure 8-1 and SR 55-2)

SUBJECT: OPREP-3 BEELINE 001

- A. DEFENSE METEOROLOGICAL SATELLITE PROGRAM, 1000 SOG
- B. REPORT TIME:
- C. DMSP SATELLITE FTV
- D. REFERENCE OPREP-3 DTG
- E. TYPE OF OCCURENCE:
- F. DAY/TIME OF OCCURENCE:
- G. FOLLOW-UP REPORTING WILL BE BY: FAILURE ANALYSIS TWX
- H. ANALYSIS OF PUBLIC RELATIONS INVOLVED: NONE
- I. SIGNIFICANCE TO NEWS MEDIA: NONE
- J. NARRATIVE SUMMARY:

Figure 8-2. OPREP-3 Message Format.

(1) Use AF Form 41, OPREP-3 BEELINE, as a checklist to record and report all telephone OPREP-3's except as otherwise stated in this chapter. Do not submit completed AF Form 41 to higher headquarters.

(2) Submit voice report to the CMC GP AUTOVON 834-1211, extension 3200 if voice contact with the USSPACECOM SPOC is lost. Submit the voice report directly to NMCC or USAF Operations Center using phone numbers in this order if there is no contact with the CMC:

(a) GP AUTOVON 851-3840, 725-3530, or 227-1109.

(b) Commercial (202)521-1014.

(c) Washington Switch. GP AUTOVON 525-2111, Drop 1048, 1049, 1050, or 1051.

(d) USAF Operations Center, GP AUTOVON 225-7220, 227-6104, or 227-6105.

f. How to Submit Teletype Reports. See SR 55-2.

(1) Reports should have as a minimum:

(a) A narrative description of all available facts and circumstances pertaining to the event or incident.

(b) Possible cause of the event or incident and results of corrective action taken.

(c) Impact of the event or incident on successful mission accomplishment.

(d) Planned actions to minimize the impact of the event or incident. For example, is a replacement spacecraft available for launch?

(e) If the event or incident has any national or international impact.

(f) If the event or incident may attract attention or cause high interest in DOD or Congress.

(2) An example of an OPREP-3 BEELINE suitable for reporting a satellite failure or anomaly is in figure 8-2.

(3) The lowest classification should be applied consistent with report content and the current version of the DMSP Security Classification Guide.

8-4. Other Operational Reports. While not part of the OPREP-3 system, the following operational reports may be required:

a. SITREPs 1 and 2. See SR 55-2.

b. SPIREP and CIRVIS. See SR 55-2.

Chapter 9

AUTHENTICATION AND CODE SYSTEMS

9-1. General. Authentication systems to be used by the 1000 SOG and requirements associated with each system are shown.

9-2. KL-42. The KL-42 is used in accordance with N/SM 55-19, volume III(S).

9-3. AKAA-2001. The AKAA-2001 is used by the 1000 SOG to authenticate operational directives and messages for which no other authentication system has been designated. 1000 SOG may challenge a verbal directive with the AKAA-2001 whenever there is a doubt as to its validity. If the authentication is proper, the unit takes action as directed. If the caller is unable

to properly authenticate, follow procedures contained in AKAA-2001. If the authentication is still improper, the 1000 SOG calls the USSPACECOM SPOC by an alternate route to verify and authenticate the directions. The 1000 SOG responds to directives only after proper authentication is received.

9-4. AKAC-431. The AKAC-431 is a voice code system which is used to communicate between the USSPACECOM SPOC or Cheyenne Mountain Complex (CMC) and the unit when secure teletype communications are not available and the urgency of the message precludes the use of secure hard copy message traffic.

OFFICIAL

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HQ USAF/XOSO, Wash DC 20330-5056	1
HQ AFSC/SDS, Andrews AFB Wash DC 20334-5000	1
HQ MAC/XPP, Scott AFB IL 62225-5001	1
SD/YD, Los Angeles AFS CA 90009-2260	4
SD/DOC, Los Angeles AFS CA 90009-2260	1
HQ AWS/CS, Scott AFB IL 62225-5008	1
AFGWC/DO, Offutt AFB NE 68113-5000	2
1000 SOG/CC, Offutt AFB NE 68113-5000	10
Det 1, 1000 SOG/CC, Fairchild AFB WA 99011-5000	2
Det 2, 1000 SOG/CC, Loring AFB ME 04751-5000	2
Commanding Officer/NAVSPASUR Dahlgren VA 22448-5170	1

GLOSSARY OF TERMS

AFGWC	—	Air Force Global Weather Central
AFSCF	—	Air Force Satellite Control Facility
ASC	—	Active satellite list
ASSC	—	Alternate Space Surveillance Center
AWS	—	Air Weather Service
BSSC	—	Battle Staff Support Center
CAP	—	Command access period
CCT	—	Command and control technician
CMC	—	Cheyenne Mountain Complex
CP	—	Command post
CRS	—	Command readout station
CSAF	—	Chief of Staff Air Force
DMSP	—	Defense Meteorological Satellite Program
DMSS	—	Defense Meteorological Satellite System
DOD	—	Department of Defense
DOR	—	Daily operations report
DRS	—	Data Reconstruction Station
EAM	—	Emergency actions message
EA P	—	Emergency actions procedures
EAR	—	Engineering analysis report
ETRO	—	Estimated time of return to operations
FNOC	—	Fleet Numerical Oceanography Center
GAR	—	Ground system anomaly report
ICD	—	Interface Control Document
IOC	—	Initial operational capability
MIJI	—	Meaconing, intrusion, jamming, and interference
NMCC	—	National Military Command Center
OLS	—	Operational Linescan System
OPREP	—	Operational reporting
OPSCAP	—	Operational capability
OSRD	—	Orbital Support Requirements Document
PRADS	—	Primary Attitude Determination System
RCA	—	Radio Corporation of America
RTS	—	Remote tracking station
SCAP	—	Systems concepts and procedures
SD	—	Senior director
SOC	—	Satellite Operations Center
SOG	—	Satellite Operations Group
SOH	—	State of health
SOAR	—	Systems Operations and Analysis Report

SPADOC — Space Defense Operations Center
SPO — System Program Office
SPOC — Space Operations Center
SSC — Space Surveillance Center
SSD — Satellite systems director
SSOD — Satellite systems operations director

VAR — Vehicle Anomaly Report

WEC — Westinghouse Electric Corporation